

Section 1:

Vision, Mission, Objectives and Functions

Vision

Sustainable utilization and management of marine living resources (MLR) in the Indian EEZ

Mission

Assessment of Marine Living Resources and develop predictive capabilities both short and long term. Development of technology on MLR. Management of resources on an ecosystem basis.

Objectives

1. Develop management strategies for marine living resources on the basis of Ecosystem monitoring and modeling efforts.
2. Evolving, coordinating and implementing time targeted national /regional R&D programmes in the field of marine living resources and ecology through effective utilisation of Fishery and Oceanographic Research Vessel Sagar Sampada.
3. Establishment of a data and referral centre and marine museum for storage and dissemination of data/information to end users.
4. Implement national programme on Indian Ocean Census of Marine Living Life (CoML) and Indian Ocean Biogeographic Information System (IndOBIS)
5. Coordinating the national programme on Southern Ocean Marine Living Resources.
6. Development of technology on MLR and transfer the same for societal benefits.
7. Implementation of National programme on Microbial Oceanography

Section 1:

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Functions

- Collection analysis and interpretation of field data to test various scientific hypothesis.
- Document Marine Living Resources in the Indian ocean and predict response strategies under changing climate scenarios.
- Locate and assess exploitable living resources in the deep-sea and distant waters and provide advisories thereof.
- MLR technology development and transfer to end users.
- Publications of research papers, books, monographs and atlases on MLR. Arrange Symposium/Seminars/Workshops to Promote scientific interactions.
- Human Resource Development in the field of MLR.
- Management of the fishery Oceanographic Research vessel *Sagar Sampada*.

Section 2:

Inter se Priorities among Key Objectives, Success indicators and Targets

Objectives	Weight	Action	Success Indicator	Unit	Weight	Target/Criteria Value				
						Excellent	Very good	Good	Fair	Poor
						100%	90%	80%	70%	60%
Assess coastal marine productivity and marine ecosystem	4.00	Collection of oceanographic data	Conduct of cruises	Number	1	4	3	2	1	0
		Analysis of samples and publication of results	Number of cruise completed	Number	1	4	3	2	1	0
		Short term prediction on sardine, anchovies and mackerels	Progress in model development	Percentage	2	100 %	75 %	50%	25%	< 25%
Deep sea and distant water fishery	4.00	Deep sea demersal trawl operations	Number of successful hauls	Number	2	40	30	20	10	< 10
		Survey for myctophids resources of the central Indian Ocean	Number of successful hauls	Number	2	40	30	20	10	<10
Documenting marine biodiversity of Indian EEZ and adjoining high seas	4.00	Augmentation of IndOBIS records	Number of records added	Number	2	6000	4000	3000	2000	<2000
		Barcoding of marine species	Number of species for which barcode is developed	Number	2	50	40	30	20	<20
MLR- Technology development	2.00	Breeding and rearing of marine ornamental fishes	Number of species maintained in the hatchery	Number	1	4	3	2	1	< 1
		Imparting training to the islanders	Number of people trained	Number	1	20	15	10	5	<5
		Production of marketable juvenile	Number of juvenile	Number	2	25,000	20,000	15,000	10,000	5,000
Research Publication	4.00	Publication in peer reviewed journals	Impact factor (IF)	Number	4	20	15	10	5	< 5

Section 3: Trend Values of the Success Indicators

Objectives	Weight	Action	Success Indicator	Unit	Weight					
						Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
Assess coastal marine productivity and marine ecosystem	4.00	Short term prediction on sardine, anchovies and mackerels	Progress in model development	%	2	NA	NA	25%	50%	75%
Documenting marine biodiversity of Indian EEZ and adjoining high seas	4.00	Augmentation of IndOBIS records	Number of records added	Number	2	55,000	60,000	65,000	70,000	75,000
		Barcoding of marine species	Number of species for which barcode is developed	Number	2	NA	30	80	150	200
MLR- Technology development	2.00	Breeding and rearing of marine ornamental fishes	Number of species maintained in the hatchery	Number	1	2	4	6	8	10
		Imparting training to the islanders	Number of people trained	Number	1	20	30	50	70	90
		Production of marketable juvenile	Number of juvenile	Number	2	2000	25,000	50,000	75,000	1,00,000
Research Publication	4.00	Publication in peer reviewed journals	Impact factor	Number	4	31	64	84	104	124

Section 4: Description and Definition of Success Indicators and Proposed Measurement Methodology

Objectives	Action	Success Indicator	Definitions/Methodology
Ecosystem Monitoring and Modeling	Collection of Oceanographic data	Number of stations	Stations are prefixed and coverage is done on-board FORV <i>Sagar Sampada</i> . At each station data on physical, chemical and biological aspects are collected.
	Analysis of samples	Samples analysed	Samples are brought to shore laboratory and analysed, following standard protocols.
	Short term prediction of sardine, anchovy and mackerals	Progress in model development	Daily egg production model is being attempted using input data derived through collection from landing centres and field surveys. Mortality co-efficients for various stages of pre recruits will be computed to develop and refine the models on annual recruitment patterns.
Deep sea and Distant Water fishery	Deep sea demersal trawl operations	Number of successful hauls	Bottom trawl operations will be carried out from FORV <i>Sagar Sampada</i> using standard gears
	Myctophid resources survey of central and western Arabian Sea	Number of Stations	Myctophid biomass will be estimated using trawl surveys and acoustics
Documenting marine biodiversity of Indian EEZ and adjoining high seas	Add species records to IndOBIS website	Number of records added	Species records in each 5°X5° grid resolution will be gathered and archived in the OBIS web site
	DNA Bar-coding of species	Number of species for which bar-code is generated	Bar-codes from mt DNA using standard protocols

Section 4: Description and Definition of Success Indicators and Proposed Measurement Methodology

Objectives	Action	Success Indicator	Definitions/Methodology
MLR Technology development	Breeding and rearing of new species of ornamental fishes	Number	Breeding techniques available for four species of clown fishes. Techniques for breeding other species will be developed
	Production of marketable juveniles	Number of juveniles	Ornamental fishes reach marketable size by 90 days. Method involves culturing larvae to juveniles in hatchery conditions.
	Number of people trained	Number	Intake capacity is 20 and training duration is 4 months. Held at Lakshadweep
Research Publications	Publications in peer-reviewed journals	Impact factor(IF)	Impact factor varies with the quality of the journal . Cumulative IF for MLR publications are indicated.

Section: 5

Specific Performance Requirements from other Departments

Sl. No.	Objectives	Departments	Relevant Success Indicators	What do you need	Why do you need	How much you need	What happens if you do not get it
1	Ecosystem management and modeling	NIO-Goa CUSAT Pondicherry University KUFOS, Kochi Annamalai University SCI-Mumbai (FORV SS)	Number of stations and samples	Collect Oceanographic data	Input data for monitoring and Modelling. Platform for data collection	Minimum 4 cruises a year	Targets will not be met
2	Deep Sea and distant water fishery	CMFRI-Kochi, CIFT-Kochi, CUSAT-IF, CAS-MB KUFOS SCI-Mumbai (FORV)	- -	Cruise participation for data collection and analysis. Keeping vessel ready for operations	To collect relevant data	3 cruises per year for demersal trawl operations 2 cruises per year for Myctophids 1 cruise/year for southern ocean	Targets will not be met
3	Documenting marine biodiversity of Indian EEZ and adjoining high seas	NBFGRI- Kochi IISER-Kolkata KUFOS, Kochi Adikavi Univ., Andra Univ. Annamalai Univ. IISE, IIS, ZSI, NIO,Pondicherry Univ		Document biodiversity for selected areas Collect voucher samples DNA barcoding	Mandatory need of OBIS	Fully dependent on field data collection	Targets will not be met

Section: 5

Specific Performance Requirements from other Departments

Sl. No.	Objectives	Departments	Relevant Success Indicators	What do you need	Why do you need	How much you need	What happens if you do not get it
4	MLR Technology development	LDCL, Lakshadweep, CAS-MB KUFOS, Kochi	Number of species bred. Production of marketable Juveniles Training	Infrastructure / Technology for breeding of new species (CAS)	Training to islanders To enhance variety of marketable juveniles	At least for 5 years	Production of marketable juveniles will be affected
5	Research Publications	MLR participating agencies	Impact factor	Contribution in the form of scientific paper	To achieve target of 20 or more IF/year	At least 20 IF/Year	Targets will not be met

Section: 6

Outcomes/impacts of activities of organization

Sl. No.	Objectives	Outcome/ Impact of Organisation	Jointly responsible for this outcome/ impact with the following organizations/ Departments	Success Indicator	Trend Values for success Indicators				
					2011-12	2012-13	2013-14	2014-15	2015-16
1	Ecosystem monitoring & modeling	<ul style="list-style-type: none"> Database on Physical/ Chemical and biological Oceanographic features Delineation of major ecosystems within the Indian EEZ Modeling of Marine Ecosystem 	CMLRE NIO-Goa ICMAM KUFOS-Kochi, Annamalai Univ. CUSAT-Kochi	Progress in model development	NA	NA	25%	50%	75%
2	Documenting marine biodiversity of Indian EEZ and adjoining high seas	<ul style="list-style-type: none"> Biogeographical Information System for each marine ecosystem within Indian EEZ (six ecosystems) and adjoining high seas Barcoding of marine species 	CMLRE, NIO-Goa, IISER-Kolkata, CAS-AU, CMFRI, CUSAT-MS CMLRE, NIO-Goa, IISER-Kolkata, NBFGR-Kochi	No. of records of species	55,000	60,000	65,000	70,000	75,000
				No. of species	NA	30	80	150	200
3	MLR Technology development	Number of species for which technology is perfected. Production of marketable juveniles Imparting training to islanders	CMLRE, CAS-MB, KUFOS CMLRE	Number of species	2	4	6	8	10
				No. of juveniles produced	2000	25,000	50,000	75,000	1,00,00
				No. of people trained	20	30	50	70	90
4	Research Publications	MLR participating agencies	Impact factor	Contribution in the form of scientific paper	31	64	854	104	124